

Cal/Ecotox

Toxicity Data for Western Grebe (*Aechmophorus occidentalis*)*

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Chemical	Tox Exposure	Endpoint Type	Endpoint Description	Endpoint Value	Note	Reference
DDD (4,4'); DDE (4,4')	6.6 ppm DDE, 1.3 ppm DDD in eggs, wet wt	TOX-REPRO - physiology	eggshell thickness index (Ratcliffe's Index)	decreased compared with pre-1940 eggs	a	1
DDD (4,4'); DDE (4,4'); DDT (4,4'); POLYCHLORINATED BIPHENYLS	1.4 ppm DDE, 0.18 ppm DDT+DDD, 2.21 ppm PCBs in eggs	TOX-REPRO - physiology	eggshell thickness compared with pre-1947 measurements	no effect	b	2
DDE (4,4')	0.01-0.02 ppm DDE in fish	TOX-EXP IND - accumulation	mean concentration in breast muscle	12.8 ppm DDE, 0.8 ppm DDD, wet wt	c	3
DDE (4,4')	0.01-0.02 ppm DDE in fish	TOX-EXP IND - accumulation	mean concentration in visceral fat	61.5 ppm DDE, 5.2 ppm DDD, wet wt	d	3
DDE (4,4')	0.01-0.02 ppm DDE in fish	TOX-EXP IND - accumulation	mean concentration in blood	0.55 ppm DDE, 0.07 ppm DDD, wet wt	e	3
DDE (4,4')	0.01-0.02 ppm DDE in fish	TOX-EXP IND - accumulation	mean concentration in whole eggs	6.6 ppm DDE, 1.3 ppm DDD, wet wt	f	3
MERCURY COMPOUNDS	0.13-0.28 ppm in brain, wet wt (location means)	TOX-Non-Repro-Sublethal - cellular/biochemical effects	Hg concentration in brain correlation with P and K concentrations in blood	positive correlation	g	4
MERCURY COMPOUNDS	2.74 (0.89 SD) ppm, wet wt, in liver (Clear Lake); 1.22 (0.08 SD) ppm, wet wt, in liver (Tule Lake)	TOX-REPRO - reproductive success	productivity (young to adult ratios) at study locations	0.001 (Clear Lake), 0.16 (Tule Lake)	h	4

Notes

- a Embryo; UT; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-54-8; TOX - Chemical=72-55-9; N=93 eggs; Bear River Migratory Bird Refuge; Tox Exp Tech=in ovo; Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=Y
- b Embryo; CA; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-54-8; TOX - Chemical=72-55-9; TOX - Chemical=50-29-3; TOX - Chemical=1336-36-3; N=29 eggs; Tule Lake National Wildlife Refuge; Tox Exp Tech=in ovo; Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=N; eggshell measurements were made on eggs other than those analyzed for chemicals
- c Adult; UT; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-55-9; N=24 birds; Bear River Migratory Bird Refuge; Tox Exp Tech=diet; Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=NR
- d Adult; UT; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-55-9; N=18 birds; Bear River Migratory Bird Refuge; Tox Exp Tech=diet; Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=NR
- e Adult; UT; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-55-9; N=16 birds; Bear River Migratory Bird Refuge; Tox Exp Tech=diet; Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=NR
- f Embryo; UT; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=72-55-9; N=40 eggs; Tox Exp Tech=diet (parental); Tox Exp Dur=NR; Tox Study Dur=NR; Tox Stat Sig=NR
- g Adult; Lake; Lassen; Siskiyou; CA; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=MERCURY COMPOUNDS; N=11 birds; July-August; Clear Lake, Tule Lake, Eagle Lake; Tox Exp Tech=site contamination; Tox Exp Dur=NR; Tox Study Dur=2 mos; Tox Stat Sig=Y
- h Adult; Lake; Siskiyou; CA; NR; Species - California (R)=*Aechmophorus occidentalis*; TOX - Chemical=MERCURY COMPOUNDS; N=13 birds, Clear Lake; 5 birds, Tule Lake; July-August; Clear Lake, Tule Lake; Tox Exp Tech=site contamination; Tox Exp Dur=NR; Tox Study Dur=2 mos; Tox Stat Sig=Y; Productivity was based on 1992 field observations and was not specifically assessed for individuals used for tissue analyses.

References

- 1 Lindvall, Mark L. and Jessop B. Low. 1980. Effects of DDE, TDEm and PCBs on shell thickness of western grebe eggs, Bear River Migratory Bird Refuge, Utah - 1973-74. Pestic. Monitor. J. 14(3):108-111.
- 2 Boellstorff, D.E., H.M. Ohlendorf, D.W. Anderson, E.J. O'Neill, J.O. Keith and R.M. Prouty. 1985. Organochlorine chemical residues in white pelicans and western grebes from the Klamath Basin, California. Arch. Environ. Contam. Toxicol. 14:485-493.
- 3 Lindvall, Mark and Jessop B. Low. 1979. Organochlorine pesticide and PCB residues in western grebes from Bear River Migratory Bird Refuge. Bull. Environ. Contam. Toxicol. 22(6):754-760.
- 4 Elbert, Ruth Anne and Daniel W. Anderson. 1998. Mercury levels, reproduction, and hematology in western grebes from three California Lakes. Environ. Toxicol. Chem. 17(2):210-213.

* Cal/EPA, OEHHA and the University of California Regents are not responsible for damages of any kind resulting from the use of or reliance on information in this report. Users are encouraged to consult the original data. Updated: February 1999.